

On the Nidification of some Javan Birds

By A. HOOGERWERF (Buitenzorg)

Plates XVI-XXI

I. *The Brantas Delta.*

The following observations were made by me in the east of Java, near the mouth of the River Brantas during the latter half of February, 1935. I had always been keen on investigating the breeding grounds in the Brantas Delta, having heard that thousands of birds, of a variety of species, habitually nested there and on my first visit I was pleased to find that the reports had not been exaggerated. It would appear that formerly the area was covered with mangrove forest, but that in the process of making fish-ponds many of the big trees have been destroyed. Here and there, a large tree in a pond indicates past conditions. Remains of the mangrove forest border the ponds which also contain islets of the same kind of vegetation. These islets are the breeding grounds of many herons and cormorants. The trees grow out of the water, or from the mud in which one can sink to the waist. This latter circumstance, together with the abundance of mosquitoes, and the great heat experienced, made photography difficult.

Within two weeks at the breeding grounds I found young birds, or eggs of the following species:—

Ardea cinerea rectirostris; *Ardea purpurea manillensis*; *Egretta alba modesta*; *Egretta i. intermedia*; *Egretta garzetta nigripes*; *Ardeola ibis coromanda*; *Ardeola ralloides speciosa*; *Nycticorax n. nycticorax*; *Nycticorax caledonicus* subsp.; *Phalacrocorax sulcirostris territori*; *Phalacrocorax niger*; *Anhinga rufa melanogaster*; and *Plegadis falcinellus peregrinus*.

Ardea cinerea rectirostris Gould.

Several nests were found, some with fresh eggs, but the majority with young birds. Sometimes the nests were in the upper thin branches of large trees, in company with nests of the purple heron, but the nests were also seen in leafless trees, on one occasion only about three yards from the ground. The clutch consisted of three or four eggs in appearance like those of the western race of the common heron, *A. c. cinerea*. Average size of eggs 56 x 40.5 millimetres. On one occasion I saw one of these herons swimming in a pond in water about nine feet deep. Swimming is unusual in this species.



Breeding Grounds in the Brantas Delta, Java.



Threskiornis aethiopicus melanocephalus.



Threskiornis aethiopicus melanocephalus.

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Ardea purpurea manillensis Meyen.

The nests were usually placed in thin branches about forty-five feet from the ground, but sometimes only nine or twelve feet high. They were always in dense foliage and never in leafless trees. Sometimes there were about five nests in one tree. I saw fresh eggs, newly hatched young, and juveniles that had already left the nest. The eggs are much like those of *A. cinerea rectirostris* but are, perhaps, slightly paler. The clutch consists of three or four eggs and the average size is 56 x 41 millimetres.

Egretta alba modesta (Gray).

This species was not common. Some nests were in the thin branches of high trees, but never in leafless trees. Several nests were often grouped together but not mixed with those of other species. These nests contained three or four fresh eggs. A group of three nests in another place on the same pond was only about five yards from the ground and each nest contained not more than two half-grown young. The beautiful deep sea-green eggs are rather smaller than those of the purple heron. The average size of the eggs is 55 x 39.5 millimetres.

Egretta garzetta nigripes (Temm.).

Large numbers of this species were found breeding. Most of the nests were in low trees only a few feet above the water. Unlike *E. alba modesta* and *E. i. intermedia* the nests were usually mixed with those of *Ardeola ibis coromanda* and *Ardeola speciosa* and sometimes in company with *Nycticorax n. nycticorax*. I saw no nests more than twelve feet above water-level. Most nests contained small, or half-grown young birds, seldom more than two in one nest. The eggs are light blue-green and clutches varied from two to three. The average size of the eggs is 41.5 x 31 millimetres.

Egretta intermedia intermedia (Wagl.).

This species was not rare but less common than *E. garzetta nigripes*. The nests were in colonies, apart from those of other species, usually in dense foliage. All nests examined contained young birds.

Ardeola ibis coromanda (Bodd.).

This common Javan species breeds abundantly in the Brantas Delta but on the present occasion no eggs were found.

Ardeola speciosa (Horsf.).

The pond-heron was found breeding in even larger numbers than the last-named bird. The nests were in a variety of situations although never in leafless trees and some were only about twenty or thirty inches above the water. The eggs found

measure about 38 x 28 millimetres. They are very like those of *E. garzetta nigripes* but perhaps slightly paler. Like the night-heron this bird not only devours young birds fallen from nests but also actually robs nests of their young. It is therefore a bad influence in the colony.

Nycticorax nycticorax nycticorax (Linn.).

This was one of the commonest breeding birds in the places visited. The groups of nests were usually by themselves but many nests were also seen mixed with nests of *Ardeola ibis coromanda*, *Ardeola speciosa* and *Egretta*. The night-heron is a most undesirable neighbour in a nesting colony for on many occasions I saw it robbing the nests of other species of herons. Even young birds of this species running away from their nests on the approach of danger would snatch up eggs and nestlings of the cattle egret and the pond-heron to gulp down at leisure in a safer place. From my hiding tent I often saw the thieves at work, on the ground, looking up at the nests and waiting for a victim to drop. I never saw a whole bird devoured. In most cases the abdomen and skull were opened for the purpose of getting at the bowels and brain. It is noteworthy that in one group the nests either contained young birds, or had recently been vacated by juveniles, but that in another colony all the nests contained one or two fresh, non-incubated eggs. The eggs are greenish blue and in size average 48 x 33 millimetres.

Nycticorax caledonicus subsp.

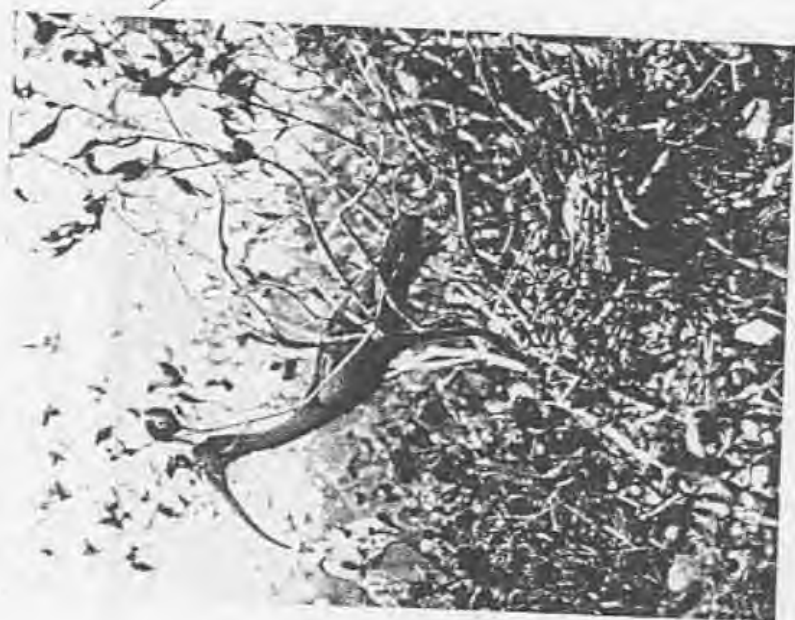
This bird had never been recorded from Java and I was therefore very elated when I not only saw it for the first time but also discovered its nest after searching for seven days. I found no colony but three separate nests, which were among those of the common night-heron although placed rather higher in the trees. The nest I photographed was about forty-two feet from the ground. It was exactly like that of *Nycticorax nycticorax* and contained two well-incubated eggs (a young bird was hatched soon after my first visit), but unfortunately, as I had to photograph the nest from another tree I could not make a close examination of the eggs. As far as I could see they appeared to be exactly like those of *N. n. nycticorax*. According to the experience of Mr. Shoemakers in Surabaya the juveniles are like those of *N. nycticorax* and only develop the red colour of the upper parts very gradually. The nests found by me contained two eggs.

Phalacrocorax sulcirostris territorii (Maths.).

It is most curious that there was no satisfactory formal record of this bird from Java when it breeds in hundreds in the eastern part of the island. The nests are either in nearly



Phalacrocorax sulcirostris territorii.



Plegadis falcinellus peregrinus.



Nycticorax caledonicus subsp.

leafless trees, or among the dense foliage of the mangroves: they are like those of *Phalacrocorax carbo* but much smaller. The birds were not shy and therefore more easy to photograph than most species in the "heronries". Most of the nests contained three, nearly full-grown birds, but on one occasion there were four nestlings. One nest contained one bird in white down and three in the black juvenile plumage. Without the chalky covering the eggs are pale greenish-blue. In size they average 53 x 33 millimetres. Only two eggs were found: they were fresh. One disappeared the next day and was probably taken by the night-heron occupying the next nest.

Phalacrocorax niger (Vieill.).

Many hundreds of these small cormorants nest in the Brantas Delta where their habits differ conspicuously from those of the larger species *Phalacrocorax sulcirostris*. I never saw nests in high or leafless trees, but always in the most dense foliage which is usually on the smaller trees. The nests were often only a few yards from the ground or water-level. They always included a lot of leaves, and I even saw nests containing young birds being extended or repaired, by the parents, with small twigs containing fresh leaves. The nests were therefore always in dark places and difficult to photograph. Moreover, the birds were very shy. I never found more than three young birds in one nest and none of the nestlings was newly hatched. Many nests contained unfertilized eggs. The eggs are covered with a dirty chalky layer and measure about 45.5 x 27 millimetres.

Anhinga rufa melanogaster Penn.

Only a few breeding pairs of this bird were located nesting in high trees in company with *Phalacrocorax sulcirostris*. The nests were rather larger than those of the cormorants and all contained young birds about a week old. These were covered with pure white down and formed a beautiful, striking contrast with their black parents. The nests were in leafless trees and it was therefore especially interesting to note that young birds always sought shelter from the sun in the shade of neighbouring vegetation only returning to the nests when the parents arrived to feed them. The old birds were very shy and I only obtained a snapshot after two days. No eggs were seen.

Plegadis falcinellus peregrinus (Bp.).

Although I had heard that this ibis bred in the Brantas Delta I was unable to find the colony until Messrs Shoemakers and Hompes, after great trouble, located the haunts. On the day of our arrival we saw the birds dragging nesting material into the smaller mangrove trees, for the ibises breed much later than the other birds. Later, we found about thirty nests, empty,

or containing fresh eggs. According to the local inhabitants, the ibis often uses old nests of the small herons (eg. *Ardeola speciosa* and *A. ibis coromanda*) and this appears to be true. Sometimes the nests include grass, straw, and sea-weed, which the birds were seen carrying from the fish-ponds. The ibises do not nest in isolated colonies but among the nests of the pond-heron, the cattle-egret, and the common night-heron. The nests are always in dense foliage and sometimes only nine feet up in the smallest trees, although other nests were in high trees and about thirty to forty-five feet from the ground. The egg-shell is of a very fine texture and the colour a beautiful deep blue-green. The average size of the eggs is 51 x 34 millimetres. At dusk other ibises, about one hundred, came to roost in the same pond but they did not mix with the breeding pairs. A few *Threskiornis aethiopicus melanocephalus* also passed the night in the same place but before sunrise they had returned to their feeding grounds on the coast.

II. Tangerang: north coast of West Java

Ibis cinereus (Raffles).

At daybreak on 14th July 1935 I was sailing up a big river in Tangerang on the north coast of Java. Both the banks were covered with mangrove trees (*Avicennia* sp.). Three-hundred yards upstream I saw the first nest of *I. cinereus* in a big tree, over the water. This rather surprised me as the river is much used for general transport and by fishermen. The nest was like that of *Ardea cinerea* but slightly more robust and containing thicker twigs: it was ninety feet above the level of the water and contained young birds. In another tree near the river were two other nests. As the parent sat close I expected to find eggs, or newly-hatched young. When my native collector climbed the tree, the sitting bird followed his movements with outstretched neck, but did not fly away until the climber was three yards from the nest. The bird was always mute and remained close at hand, flying in wide circles round the nest which I was much surprised to find contained two birds about ten days old. A hundred yards upstream, in big mangrove trees (*Avicennia*) standing about one-hundred and fifty yards from the edge of the river, I then discovered a colony of from seventy-five to one-hundred nests. The colony consisted mostly of young birds which had left their nests and were scattered about on neighbouring small branches.

None of the trees was less than about ninety feet in height and the ground at the base was soft and muddy. The nests were very variable in size and structure. Some were small and so flimsy that they could be seen through but others were larger



Anhinga rufa melanogaster.



Charadrius alexandrinus seebohmi



Sterna albifrons sinensis

and heavier like those of *Ardea cinerea*. Sometimes the nests were as heavy as those of *Leptoptilus javanicus*. The colony was distributed over an area of about one-hundred and fifty by three-hundred yards. One tree often contained from five to seven nests, but sometimes as many as ten, and rarely only two, or three. At the time of my visit most of the nests contained nearly full-grown young birds which flew away when a climber attacked their tree, but returned to the nest the moment he retreated. Some younger nestlings were rather like those of *Leptoptilus* but smaller. The parent birds were not at all shy. The maximum number of young found in one nest was three. Often the nests contained only two nestlings, and on a single occasion, one only.

It was not until thirty nests had been examined that I found eggs, a clutch of three, slightly incubated. They are like the eggs of *Leptoptilus javanicus* but slightly paler. When found they were dirty and mud-stained but after treatment with warm water appeared pure white with a rough, calcareous shell. The measurements of these three eggs are 62, 60, 61 x 44, 42, 44 millimetres.

Among the nests of *Ibis cinereus* were a few of *Ardea cinerea*. On the return journey in the afternoon I passed about fifty of the painted storks fishing on the mud-bank a hundred yards or so from the coast, off the mouth of the river.

Threskiornis æthiopicus melanocephalus (Lath.).

On the coast some miles from the colony of *Ibis cinerea*, Mr. Siccama and I found about thirty nests of *Threskiornis* in one small tree of *Melia azadarach* standing in a nearly dry place. The nests were from about fifteen to eighteen feet from the ground and were placed so close together that in some cases five or six nests formed a single platform. The nests are like those of *Phalacrocorax sulcirostris* but smaller. Sometimes fresh green leaves were included, even when the nest contained young birds. Most of the nests contained three, or four young birds. In these the black head and neck are clothed with short hair-like feathers.

Only a few eggs were found, all well-incubated. They closely resemble the eggs of *Ibis cinerea* but are more oblong and with a faint tinge of blue: they are covered with a similar dirty calcareous layer which is hard to remove. The average size is 65 x 42 millimetres. The birds were very shy and I only succeeded in obtaining photographs after a stay of three days.

III. *Batavia, West Java.*

Charadrius alexandrinus seebohmi Hart. and Jack.

A. HOOGERWERF

In June 1934, on the coast, near Batavia, West Java, I found nests of a small plover and secured a photograph of a bird at the nest. Specimens of this bird have since been obtained and identified at the Raffles Museum as a tropical breeding race of the Kentish plover. The average size of ten eggs is 31 by 22 mm.

Sterna albifrons sinensis Gm.

In May, June and July 1934 and 1935 I found this ternlet breeding on sandy places on the coast near Batavia, near *Charadrius alexandrinus seebohmi*. The nests were small hollows in the ground lined with small shells and pieces of shell. No nest contained more than three eggs. These are very like those of *Sterna a. albifrons*: the average size of twelve is 32 by 24 mm. The subspecific name is here applied on grounds of probability.
